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RESEARCH AND DEVELOPMENT CENTER SAN DIEGO CA  
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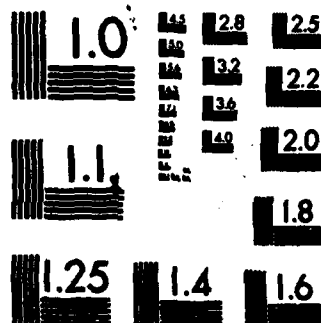
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MAY 1983

**NAVY PERSONNEL ACCESSIONING SYSTEM (NPAS):  
III. DEVELOPMENT OF A MICROCOMPUTER  
DEMONSTRATION SYSTEM**

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May 1983

**NAVY PERSONNEL ACCESSIONING SYSTEM: III. DEVELOPMENT OF  
A MICROCOMPUTER DEMONSTRATION SYSTEM**

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21. ABSTRACT (Continue on reverse side if necessary and identify by block number)  This report describes the development of a demonstration version of the Navy Personnel Accessioning System (NPAS) capable of running on a stand-alone microcomputer in the Navy recruiting station environment. NPRDC Special Reports 83-34 and 83-35 describe the conceptualization and design of NPAS and provide a summary of R&D efforts and products resulting from the NPAS project.		

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## **FOREWORD**

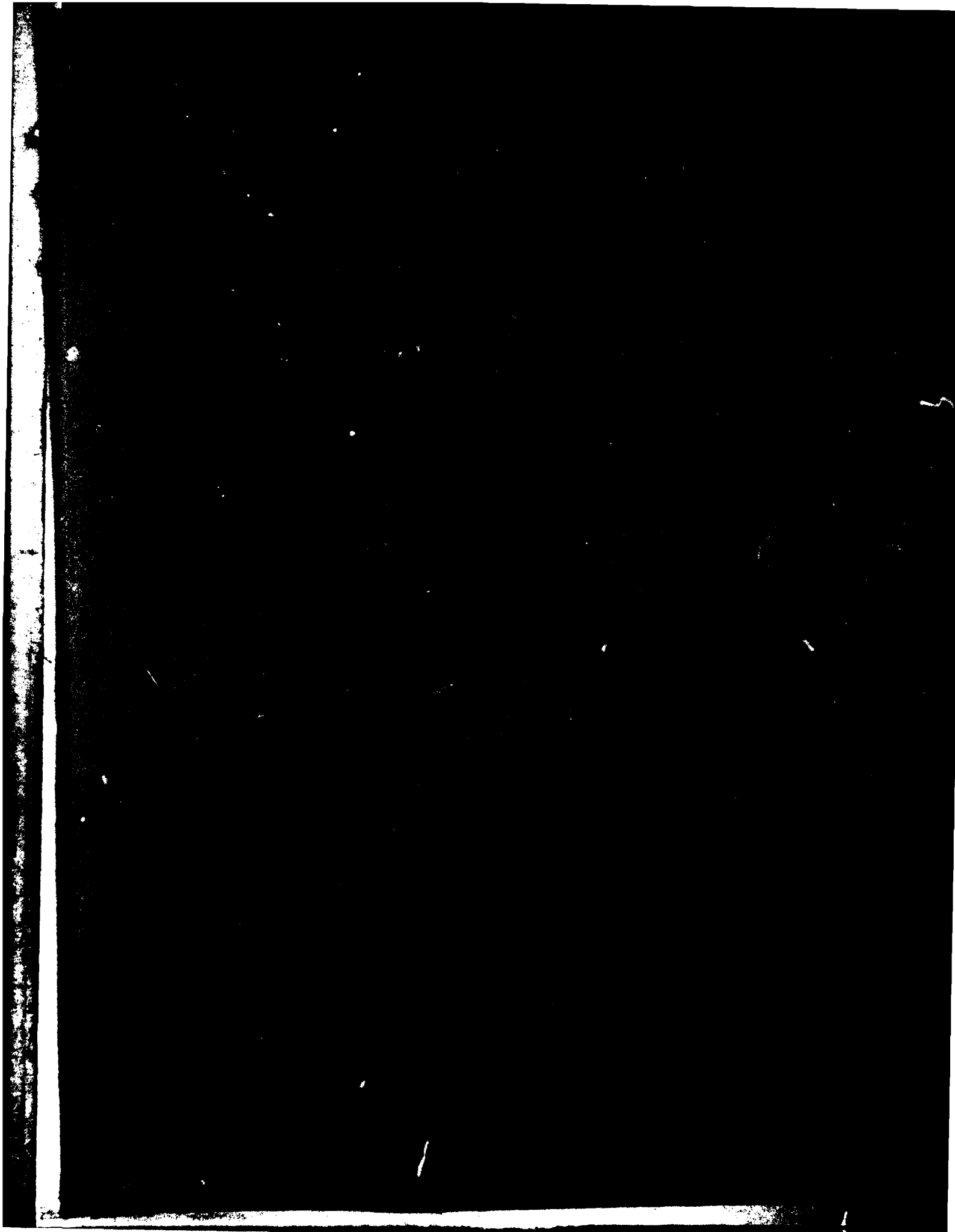
This research and development project was conducted within exploratory development task area 64709N (Prototype Manpower/Personnel System) and was sponsored by the Chief of Naval Operations (OP-01). The purpose was to design, develop, test, and evaluate a distributed processing Navy personnel accessioning network. Computer-based personnel assessment and measurement techniques were integrated into a system designed to (1) serve as a data base management and labor-saving device for the Navy Recruiting Command (NRC), (2) assign recruits optimally to Navy jobs and reserve training school seats, (3) provide individualized career information with fewer support personnel than at present, and (4) ensure improved person-job placement. The resulting Navy Personnel Accessioning System (NPAS) (Z1039-PN) was expected to benefit the NRC and the Naval Military Personnel Command. However, R&D efforts on the NPAS system were terminated on 30 September 1981 as a consequence of large program element fund reductions.

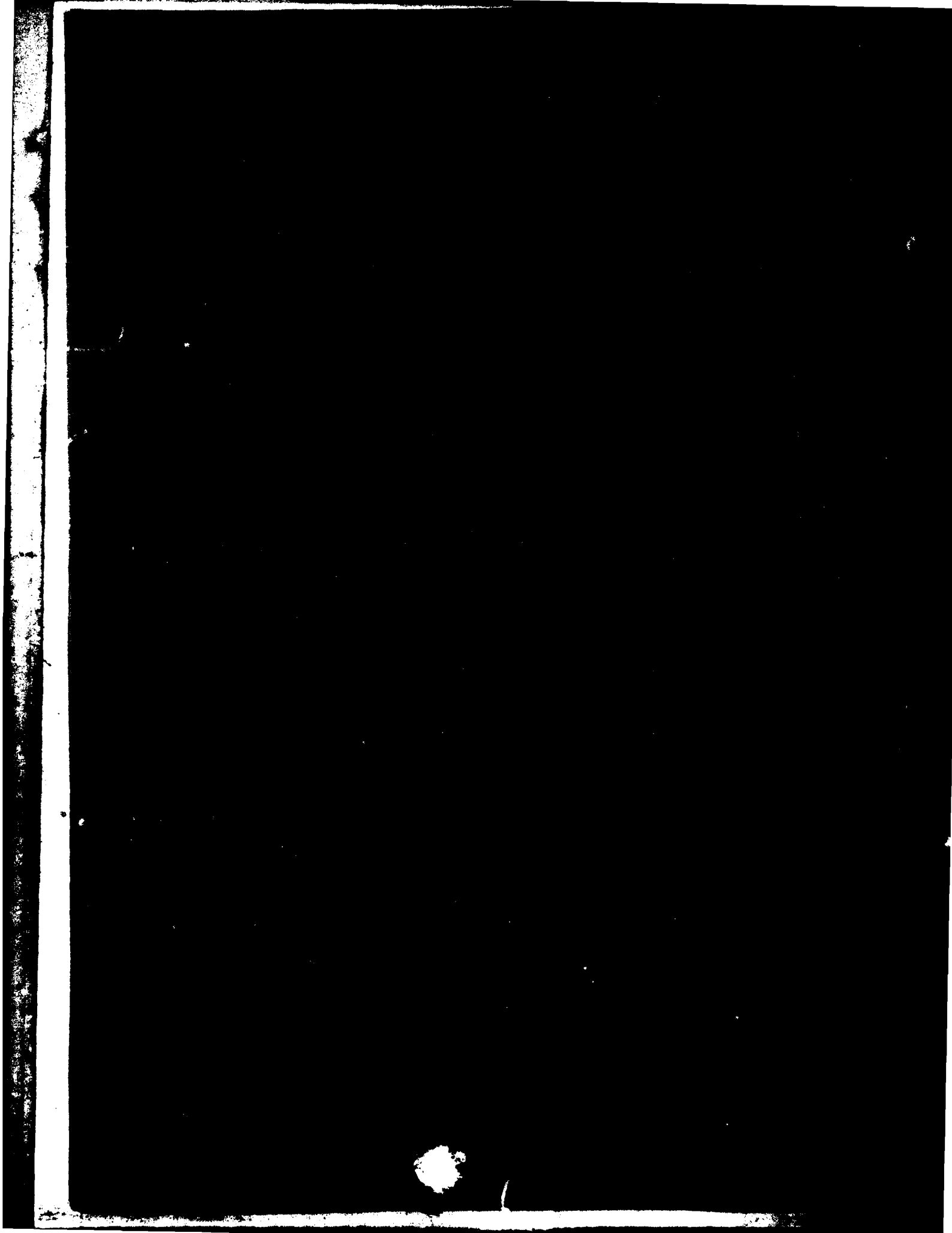
This is the third of three reports that document the NPAS project for Navy managers and the R&D development community. The other reports provide a background and overview and a summary of R&D efforts and products resulting from the NPAS project (NPRDC SRs 83-34 and 83-35).

Gratitude is expressed to CAPT J. K. Gardella, Commanding Officer of the Navy Recruiting District, San Diego, at the time this study was conducted and his staff for their zealous cooperation, warm hospitality, and sincere interest in the progress of the NPAS project. Particular thanks are due to ETC O. A. Wentzel and NCI J. Smith, Recruiters-in-Charge at San Diego and Oceanside respectively, who contributed their time and expertise over a period of several months and assisted the project staff in many ways.

**JAMES F. KELLY, JR.**  
Commanding Officer

**JAMES W. TWEEDDALE**  
Technical Director







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## **INTRODUCTION**

### **Background and Problem**

#### **NPAS Research and Development**

The Navy Personnel Accessioning System (NPAS) project was intended to design, develop, test, and evaluate a distributed processing Navy personnel accessioning network. Computer-based personnel assessment and measurement techniques were integrated into a system designed to (1) serve as a data base management and labor-saving device for the Navy Recruiting Command (NRC), (2) assign recruits optimally to Navy jobs and reserve training school seats, (3) provide individualized career information with fewer support personnel than at present, and (4) ensure improved person-job placement.

In the course of NPAS research and development (R&D) efforts between 1979 and 1981, significant advances were made in assessing the needs of Navy recruiting and in outlining the scope of assistance to Navy recruiting desired by NRC. From the great number of benefits and features potentially embraced by a total personnel accessioning system, several were selected that seemed to accommodate minimum system requirements for effectiveness while avoiding major Navy policy contraindications. After system functions were specified and necessary data bases developed, the various selected functions were combined into a conceptual model to support both person-job matching (PJM) on the one hand, and general recruiting management support (RMS) on the other. Interactive dialogues were planned to permit the applicant and the recruiter to use the system. Software development would finally transform the concept plus the several research products into a computerized, operating demonstration system, to be extensively field-tested and refined. Ultimately, favorable decision by NRC would have resulted in implementation of an operational system throughout the Navy in the service of recruiting.

#### **NPAS Project Constraints**

When funding for NPAS was eliminated for FY82 and beyond, the orderly progress of NPAS R&D was impacted adversely. Whereas the project efforts had been focused toward development of a demonstration system that would be field-tested as a prelude to a system decision paper in accordance with life cycle management guidelines, the sudden imposition of severe fiscal, logistical, and temporal constraints required all project work to be focused on rapidly developing a demonstration system to be used in the search for alternative funding.

Although NRC was a logical source from which to seek at least minimal funding so that R&D could continue through FY82, any positive funding decision would have been too late by the end of FY81 (30 September 1981). Accordingly, the target date for completion of a demonstration system and a formal briefing of it to the Commander, NRC (CNRC) was moved to 30 July 1981, shortening the time for system design and development by about 7 months. A contract for the purchase of minicomputer equipment to be used for software development had not been let (and was subsequently cancelled). Computer equipment available for development of a demonstration system was therefore limited to on-hand equipment. With the shortening of the development time, contractor assistance was not feasible, nor was it possible to hire needed personnel. Thus, all the work on the demonstration version of NPAS had to be accomplished by a staff of four full-time researchers, assisted by several part-time students.

NRC policy was emphatic in its proscription of recruiter-applicant discussion of ratings availability or even ratings characteristics. The NRC mission is recruiting, in a

very specific sense, and providing career information to applicants is not a requirement. Larger issues of Navy policy and organization are beyond the scope of this report. However, it should be noted that the attempt to accommodate NRC policy considerations led to moderate truncation of several applicant-oriented functions in the PJM subsystem.

### Objectives

The objectives of this effort were to:

1. Develop a demonstration version of the NPAS system, capable of running on a stand-alone microcomputer, as a briefing model and a demonstration vehicle.
2. Demonstrate the system to Navy recruiter personnel and NRC management to assist them in evaluating its effectiveness in meeting the needs of Navy recruiting.
3. Demonstrate the system at a formal CNRC decision briefing to secure alternative funding.

### APPROACH

The functions to be included in the NPAS demonstration system were selected in accordance with: system integrity and comprehensiveness as a personnel accessioning system, input from recruiters and NRC recruiting managers regarding current policy and needs, and the feasibility of developing each function within the temporal and logistical constraints. After identification of the computer configuration and functional specification, functions and subfunctions were developed to the point that enabled clear demonstration of their value to recruiting, effectiveness, methods of operation, and ease of use. Functions in the demonstration system used data bases already developed. Interactive computer dialogues were written for each function. Where functions were modified for demonstrations, dialogues were written specific to the demonstration version (or revised to accommodate the demonstration, if previously developed).

After the functions were developed, they were integrated into the overall system concept. Interactive computer dialogues were written to ensure ease of use by both recruiter and applicant, with smooth transitions between the subfunctions. Complete software packages were developed to support NPAS in its demonstration form. Software was developed on computer equipment available within the work group.

### ORIGINAL VERSION OF NPAS

The Navy Personnel Research and Development Center (NAVPERSRANDCEN), anticipating the challenges facing Navy recruiting in the next decade, and capitalizing on the automation opportunities made possible by technological development, conducted research into the requirements and potentials of the computerized NPAS. This research resulted in a conceptual model for a demonstration and field test system that integrates and supports two major functions at the recruiting station level: (1) person-job matching (PJM) and (2) recruiting management support (RMS) (Figure 1). NPAS was designed to provide the Navy recruiter with a powerful, state-of-the-art system to improve and simplify many day-to-day tasks and to eliminate the need for separate data and administration equipment. The PJM system smoothly interfaces with the RMS system, with both operating on the same hardware.

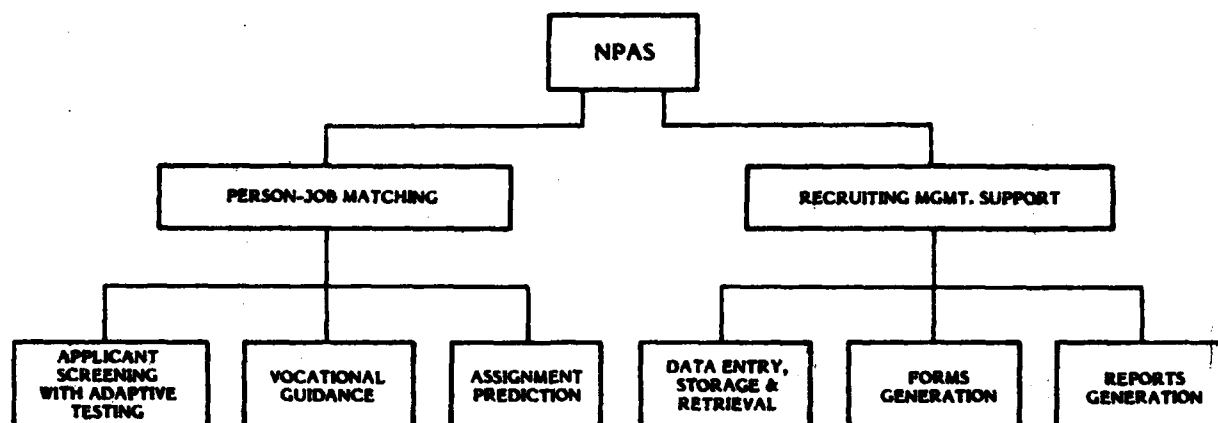


Figure 1. NPAS functions.

## PJM Functions

### PJM Subsystem

The Automated Guidance for Enlisted Navy Applicants (AGENA) system, a prototype computerized guidance system that became the central portion of the NPAS system, supports three PJM subfunctions: applicant screening with adaptive testing, vocational guidance, and assignment prediction. These components are described below.

1. Applicant screening with adaptive testing. The Computerized Adaptive Screening Test (CAST) is a computer-administered aptitude test that would replace the conventionally administered paper-and-pencil Enlistment Screening Test (EST), which is currently used to screen out applicants who are expected not to qualify for enlistment on the Armed Services Vocational Aptitude Battery (ASVAB). Compared to current procedures, use of CAST would increase measurement precision, reduce testing time, improve test security, reduce clerical burden, and reduce costs.

2. Vocational guidance. The Navy, like the other military services, offers a large number of diverse job opportunities, most of which are unfamiliar to the typical applicant. In NPAS, an applicant's interests would be measured using the Vocational Interest Career Examination (VOICE), Form C, a 245-item inventory developed by the Educational Testing Service (ETS), under contract to the Air Force Human Resources Laboratory, San Antonio, Texas. Computer-based vocational guidance offers a number of advantages over present procedures, including (a) accurate, consistent, and current information, (b) rapid access to that information, (c) self-paced progress through the guidance materials, and (d) independence from the recruiter. This last advantage would enable the recruiter to attend to other duties while the applicant is interacting with the system.

3. Assignment prediction. Any effective procedure for matching persons with jobs should consider both individual characteristics (e.g., abilities, preferences, interests, and goals) and institutional characteristics (e.g., priorities, objectives, training program vacancies, and personnel requirements). In NPAS, a mathematical model would consider all these factors and, coupled with information on when an applicant wants to enter the Navy, determine which entry-level jobs are most likely to be options available during the subsequent classification interview at a military enlistment processing station (MEPS).

### PJM Modules

The AGENA system is composed of nine separate modules (Figure 2): system introduction, aptitude screening test, interest inventory, career planning, ASVAB interpretation, Navy ratings available, related civilian occupations, session/final summary, and system evaluation. These modules are described below.

1. System introduction. This module familiarizes the applicant with the operation of the computer equipment and introduces the guidance system. Following an opening statement of welcome, the operation of the video-display terminal (VDT) is explained. After the applicant has been given an opportunity to practice using the control keys, he or she is provided with a brief overview of the entire system, followed by a list of the nine modules that will be used.

2. Aptitude screening test. This module, which contains CAST, would be presented only to applicants who lack ASVAB scores. CAST is designed to predict an applicant's performance on ASVAB, specifically, the Armed Forces Qualification Test (AFQT) score, which is based on a linear composite of ASVAB scores. CAST provides the recruiter with an index of an applicant's chances of qualifying for enlistment.

3. Interest inventory. This module contains the computer-administered VOICE (Form C) 245-item interest inventory. Applicants are to indicate whether they "like," "are indifferent to," or "dislike" jobs, work tasks, spare-time activities, and desired learning activities in 18 different areas: office administration, electronics, heavy construction, science, outdoors, medical service, aesthetics, mechanics, food service, law enforcement, audiographics, mathematics, agriculture, teacher/counseling, marksman, craftsman, drafting, and automated data processing. Each applicant's scores on these basic scales would be presented on the VDT using a bar graph. The applicant could obtain a hard-copy printout of the bar graph.

4. Career planning. This module discusses the value of career planning, including the idea that career planning should incorporate information about aptitudes and interests. If the applicant had not taken ASVAB at this point, the discussion would include the general purpose of ASVAB (Forms 8, 9, and 10) as well as a list and brief description of the ASVAB subtests. Finally, the applicant would be encouraged to schedule an appointment for ASVAB testing, because the next module in the AGENA system requires these scores.

5. ASVAB interpretation. This module interprets the results of the ASVAB testing for the applicant. After displaying a list and brief description of the component tests, the applicant's performance on these tests would be interpreted in terms of strengths and weaknesses, using a bar graph presented on the VDT. The applicant would be able to obtain a hard-copy version of the bar graph.

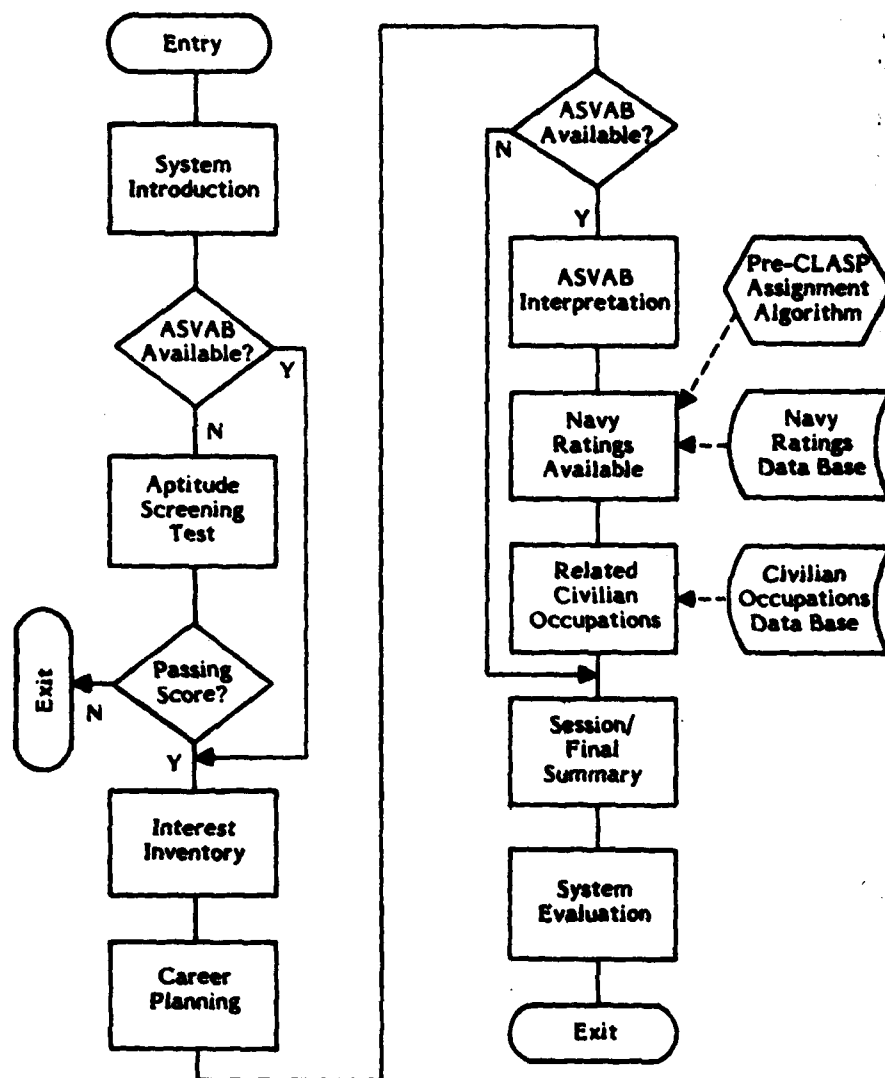


Figure 2. The AGENA system.

6. Navy ratings available. As previously mentioned, NPAS was designed for use at Navy recruiting stations. Since actual assignments are made later by Navy classifiers at a MEPS site, the AGENA system incorporates an algorithm called pre-CLASP. The purpose of the pre-CLASP algorithm is to predict what the CLASP system (Rafacz & Betts, 1980) will show as assignment options for applicants during their subsequent classification interview at MEPS. First, the module displays the applicant's top three assignment options, based on the PJM index. For information on these options, the applicant could access the Navy ratings data base. Such information would be available in two formats: (a) an abbreviated version, which was designed for VDT display and includes five sections: general description, related civilian jobs, qualifications, working conditions, and Navy opportunities, and (b) an extended version, which includes the five sections of the abbreviated version, plus three additional sections: what people in the rating do, sea/shore rotation, and training provided by the Navy. If the applicant finds none of the

top three options appealing, he or she could examine another set. This process continues until the applicant either finds a job that seems to be a good choice, or he or she has examined all the options for which he or she is eligible (no more than 15—5 sets of 3). Before exiting from this module, the applicant would be asked to choose the one or two assignment options that seemed most promising.

7. Related civilian occupations. This module, which attempts to communicate to the applicant that Navy training can make a substantial contribution to total career development, begins with a brief discussion of the general value of Navy training and experience. The applicant can access the civilian occupations data base to obtain information on civilian occupations (or clusters of occupations) related to the Navy assignment opportunities selected. Such information, which would be available on the VDT and as hard-copy output from the printer, would include five sections: general description, qualifications and training, pay and working conditions, employment outlook, and related Navy jobs. Finally, a brief discussion of additional benefits of Navy enlistment (e.g., medical benefits) would be presented.

8. Session/Final summary. This module summarizes the results of the present session on the system. If the applicant had completed the first seven modules, the results of all sessions on the system would be presented, as well as information on the aptitude screening test (CAST), the interest inventory (VOICE), the classification test battery (ASVAB), the Navy jobs explored, the jobs selected, and the related civilian occupations examined.

9. System evaluation. This final module obtains the applicant's evaluation of the system by administering a series of multiple-choice questions on-line. The information obtained would be used as feedback to help modify and improve the system.

### RMS Functions

NPAS would place in the recruiter's hands the computer's ability to organize and store vast amounts of data, quickly retrieve them on command, and then present them in usable form. The printing capability incorporated in the system permits fast, accurate, high-quality, and error-free production of completed forms, reports, and general correspondence. The RMS subsystem (see Figure 3) interfaces with the PJM subsystem to facilitate all phases of administration and management within the recruiting station. In the demonstration system, three broad functions are supported: (1) data entry, storage, and retrieval, which includes general files maintenance, information access, and word processing, (2) forms generation, and (3) reports generation. These functions are described below.

### Data Entry, Storage, and Retrieval

Recruiting stations maintain extensive paper files, both required and locally designed optional types. Examples of required files that would be automated are suspect/prospect (S/P) cards, the Local Effective Accession Delivery System (LEADS), various "tickler" files, and the recruiter Tracking and Analysis System (TABS). Some optional files would be eliminated by automatic storage of data during normal system operations and by the ease of data retrieval that characterizes NPAS, while other optional files would be automated. Considerable floorspace formerly occupied by bulky filing cabinets, would be saved. More importantly, countless hours presently involved in manual data entry, storage, and retrieval will become available for more direct recruiting activities. The terminal at the recruiting station would be the primary means of receiving the latest policy guidance, quota information, and training. Word processing capability, which would be provided through the computer equipment, would accelerate and improve general correspondence preparation and enhance the work climate and the image of the Navy recruiting station.



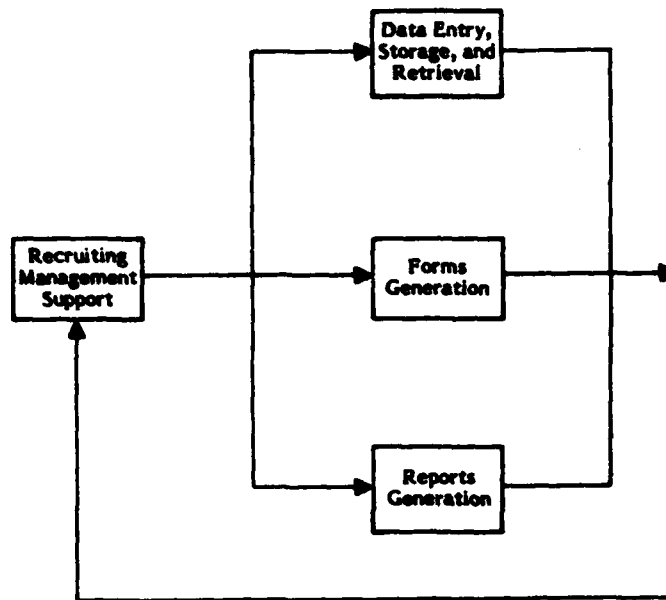


Figure 3. The recruiting management support (RMS) subsystem.

#### Forms Generation

NPAS automates many of the procedures for forms generation, with "menu-driven" software, review and editing capabilities, and rapid printing of finished documents. Thus freed from much of the present clerical burden, the recruiter could devote more time to applicant-oriented activities. Forms that could be computer-generated include (1) application for enlistment (DD Form 1966), (2) police record check (DD Form 369), (3) request for report from employer, school, or personal reference (DD Form 370), (4) application for verification of birth (DD Form 372), (5) national agency check request (DD Form 1584), and (6) request for examination (MEPCOM Form 714).

#### Reports Generation

Production summary reports, daily activity reports, and other recurring reports (none of which is standard across NRDs) would be computer-generated. Currently, scheduled reports must be manually prepared, after the data are manually retrieved from the records in which they were manually entered and stored. Reports preparation using the NPAS system would be simpler, more accurate, and less time consuming. The computer would store all needed data as part of the normal operations. Upon command, it would retrieve, format, display, and print the required report. The facility with which reports can be produced would permit more timely supervision and inspection of recruiting station operations by higher echelon NRC managers.

### **CNRC DEMONSTRATION VERSION OF NPAS**

This section describes the final demonstration version of NPAS, which was modified from the proposed system.

## Hardware

The demonstration version included the following equipment:<sup>1</sup>

1. **Microprocessor.** Applied Computer Systems (ACS) SA400-2 (double density, 8-inch double disk drive), with 64K random access memory.
2. **Terminal.** Intertec Intertube 2, black and white VDT, with standard typewriter keyboard and numeric data input keypad. To simulate a design for the keyboard on a future system and to facilitate use by personnel unfamiliar with computer equipment, the keyboard characters were marked as shown in Figure 4.

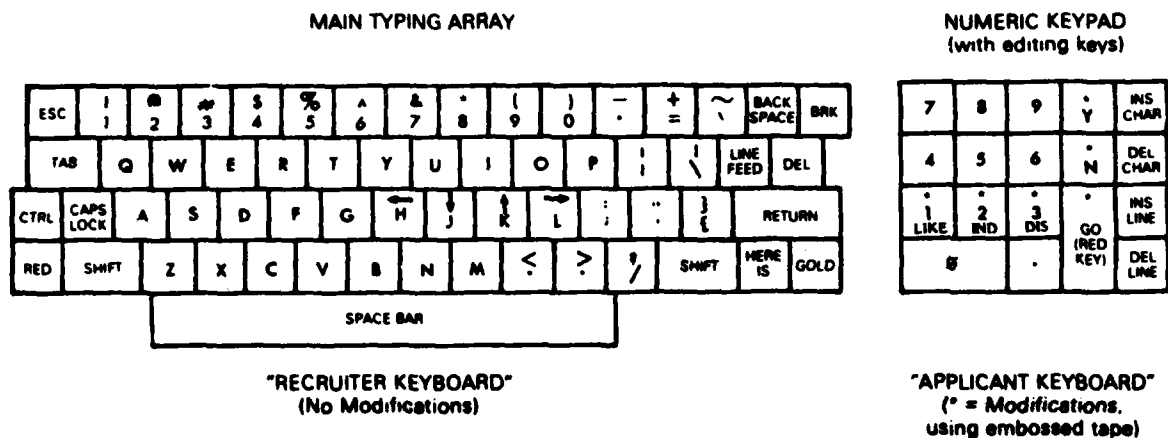


Figure 4. Demonstration keyboard configuration.

3. **Printer.** Xerox 1710 (letter quality printer).

## Software

Several significant modifications were made to both the PJM and the RMS sub-systems. These modifications were responses to: (1) the need to accommodate CNRC policies regarding vocational guidance and assignment (as deduced from both printed instructions and information gathered during preliminary briefings with Navy recruiting managers) and (2) the need to keep the demonstration short enough to hold interest and still permit a "hands-on" demonstration of key capabilities.

As shown in Figure 5, the demonstration system included nine modules. Of these, eight (all but Forms Generation) were for the applicant-oriented PJM functions; and one, for the recruiter-oriented RMS function. Appendices A through D provide sample screen dialogues and printed output from applicant and recruiter modules. During the demonstrations, recruiters or researchers took the roles of hypothetical applicants in using the NPAS system.

The demonstration modules are described below. Table 1 provides a comparison of modules for the original and demonstration systems.

<sup>1</sup>Mention of specific equipment does not imply NAVPERSRANDCEN endorsement.

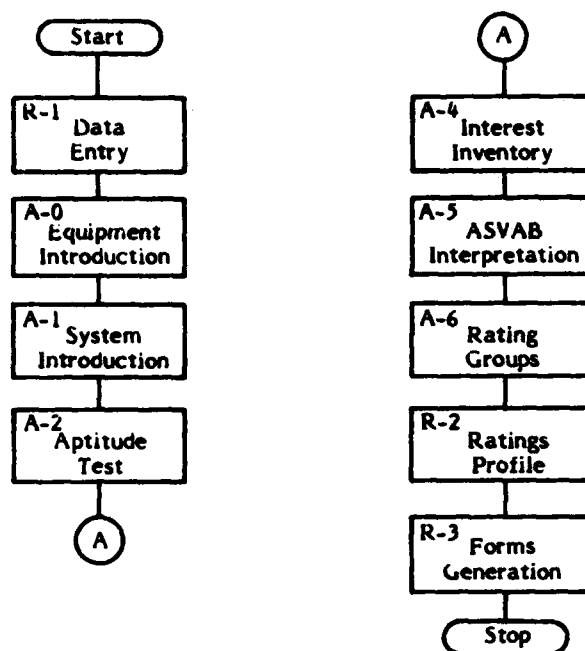


Figure 5. NPAS demonstration system.

Table 1

Comparison of Modules for Original and Demonstration NPAS System

Original System	Demonstration System
<b>PJM Subsystem</b>	
1. —	Data entry
2. —	Equipment introduction
3. System introduction	System introduction
4. Aptitude screening test	Aptitude test
5. Interest inventory	Interest inventory
6. Career planning	—
7. ASVAB interpretation	ASVAB interpretation
8. Navy ratings available	Rating groups
9. —	Ratings profile
10. Related civilian occupation	—
11. Session/final summary	—
12. System evaluation	—
<b>RMS Subsystem</b>	
1. Data entry, storage, and retrieval	—
2. Forms generation }	Forms generation
3. Reports generation }	

### PJM Subsystem

1. Data entry. This module permitted the recruiter to construct a file for a hypothetical applicant by entering a social security number and name using the "recruiter keyboard." This file permitted collection of all subsequent data during the "applicant's" progress through the system, allowed system entry and exit at various points, and, finally, personalized (a) all VDT presentations with the hypothetical applicant's name and (b) all hard-copy materials with the applicant's name and the recruiter's name and office address.

2. Equipment introduction. This module, which was subsumed within the system introduction module in the original system, introduced the computer equipment and its use at the VDT. It was designed with the assumption that the applicant was not familiar with computers or typewriter equipment. Practice with the equipment, to ensure understanding, completed the module.

3. System introduction. This module was the same as that included in the original system, less equipment introduction, and was demonstrated in its complete form. It introduces the applicant to the system, explaining its functions and benefits to the applicant. Interaction between the applicant and the system begins in this module. After the applicant has been given a "roadmap" of the entire PJM process, he or she would be ready to begin using the system.

4. Aptitude test. This module, which was a modified version of the original "Aptitude Screening Test" module, presented an abbreviated version of CAST (it was assumed, for demonstration purposes, that the hypothetical applicant had not taken the ASVAB). Five questions from the Word Knowledge (WK) subtest were adaptively administered and scored. Subsequently, the computer generated responses to produce acceptable scores on the three CAST subtests used to compute an applicant's AFQT score (those measuring Arithmetic Reasoning (AR), Word Knowledge (WK), and Paragraph Comprehension (PC)). These scores were used in an algorithm to produce a score predictive of the applicant's "successful" AFQT score. Finally, the results were presented and a congratulatory message displayed.

5. Interest inventory. This abbreviated version of the original module administered 5 of the 245 VOICE questions. After they were answered by the hypothetical applicant (the recruiter), the computer generated random responses to the remaining 240 items. The resulting interest profile was displayed on the VDT and explained. A hard-copy version was printed on demand.

6. Career planning. This module was not presented in the demonstration system.

7. ASVAB interpretation. This module was the same as that in the original system and was demonstrated in its complete form. It was designed to interpret ASVAB scores, and displays a bar graph chart for the applicant's aptitudes. A personalized, printed copy of the display was produced on demand.

8. Ratings groups. This module, which replaced the former "Navy ratings available" module, presented a list of Navy ratings groups from which the hypothetical applicant could select three for further exploration. Accessing the Navy ratings data base provided job information on the particular ratings groups (rather than on individual ratings, as in the proposed system design). In the interest of time, the module was further shortened by presenting information on only two ratings groups.

9. Related civilian occupations. This module was not included in the demonstration version.

10. Ratings profile. This module was inserted to demonstrate the potential of pre-CLASP because the demonstration version did not discuss ratings and their availability with the applicant. Hypothetical applicant data were elicited from the recruiter, and then the system produced a list of ratings for which the applicant was ineligible. With the addition of further information, the pre-CLASP algorithm was employed, producing a list of ratings options (for the recruiter's use) for the current month and 2 months into the future.

11. Session/system final summary. This module was not presented in the demonstration version. A printed copy of sample output, summarizing applicant progress through the system, was shown.

12. System evaluation. The demonstration version did not present this module.

### RMS Subsystem

This subsystem included a truncated version of the forms generation module, plus a simulated printed report from the reports generation module. During demonstrations, each recruiter constructed and reviewed an application for enlistment (DD Form 1966). The subsystem printed the form (page 1 only). To demonstrate a capability for scheduled reports generation, researchers developed a model zone supervisor's goal/accesion report that could be useful to the NRDs' zone supervisors in monitoring their units' progress and in reporting to higher echelons. Although not produced during the demonstration, a sample printout of the report was distributed (see Appendices C and D).

### Demonstrations and Briefings

1. In-house. Briefings and demonstrations were presented to the commanding officer (CO), technical director, and other senior management personnel of NAVPERS-RANDCEN at various times during NPAS development. Other briefings and demonstrations were presented to visiting Navy managers and researchers.

2. Field recruiters. The recruiters-in-charge (RinCs) of the San Diego (downtown) and Oceanside Navy Recruiting Stations (NRSs) were briefed on the complete system several times in an effort to elicit their reactions to the system in concept and practice. Their suggestions were incorporated into ongoing development efforts. The complete demonstration system was presented in a briefing and "hands-on" demonstration to the Oceanside NRS, with the RinC operating the system (see Figure 6).

3. Navy recruiting districts. On 17 June 1981, a complete briefing and demonstration were presented to the CO of NRD, San Diego, his staff, and 23 RinCs, field recruiters, and zone supervisors. On 23 June, the CO of NRD, Los Angeles and his staff were briefed on the purposes, goals, and capabilities of NPAS. The response to these briefings evidenced good support for NPAS and resulted in modifications to the final demonstration system to accommodate NRC policy considerations.

4. Navy recruiting command. On 30 July 1981, a complete briefing on the CNRC version demonstration system, alternative network configurations, funding requirements, and estimated system implementation costs was presented to the CNRC at headquarters. In attendance were many NRC managers and invited guests. The briefing was followed by a "hands-on" demonstration on the microcomputer system.

5. Chief of Naval Operations. On 31 July, 1981, the NPAS briefing and demonstration were repeated before the Chief of Naval Operations (OP-115). Managers and guests were invited from various DoD agencies.



Figure 6. Navy recruiter operating the NPAS demonstration system.

### DISCUSSION

In the course of the development and hands-on demonstrations of NPAS, the following observations were made:

1. To conduct the demonstration, the person acting as the "recruiter" was required to change diskettes only once. The compiled program code was resident on one diskette, and the data were placed on two others. To run the complete system, four diskettes are required, necessitating two changes during the progress of the applicant through the entire sequence of modules. For the RMS subsystem, it would require one diskette for data storage and one for compiled program code to accomplish forms generation and general data storage. Reports generation and general word processing might require more storage.
2. The keyboard configuration proved very satisfactory and led to no user confusion.
3. The entire demonstration system occupied only 22.5 cubic feet (about the same space as a single pedestal desk).
4. There is no or very conditional management support for vocational guidance, although many recruiters would welcome the opportunity to employ this capability.
5. The RMS capability was enthusiastically endorsed. Table 2 presents the savings in time and effort possible for the first page of the application for enlistment (DD Form 1966).

**Table 2**

**Preparation of the Application for Enlistment (DD Form 1966):  
Manual vs. NPAS Typing Effort for Page 1**

Item Number	Item Name	Keystrokes		Carriage Manipulations	
		Manual	NPAS	Manual	NPAS
1	Social security account number	21	9	1	0
2	Name	15	15	1	0
3	Current address	45	46	2	0
4	Home of record	25	1	1	0
5	Citizenship	1	1	1	0
6	Sex	1	1	1	0
7	Population group	1	1	1	0
8	Ethnic group	4	4	1	0
9	Marital status	6	1	1	0
10	Number of dependents	8	1	1	0
11	Date of birth	11	6	1	0
12	Religious preference	12	13	2	0
13	Education	3	3	1	0
15	Foreign language and skill	8	8	3	0
16	Driver's license information	15	16	3	0
	Totals	176	126	21	0

6. Screen dialogues are at a suitable readability level for recruiters. Instructions are clear and easy to follow. Menu-driven data input was well received.

7. Recruiters saw pre-CLASP, in the absence of vocational guidance and assignment-prediction at the recruiting station, as a valuable assistance in Delayed Entry Program (DEP) management.

8. Noise levels in the recruiting station did not adversely impact the demonstrations, nor were they significantly increased by the use of the demonstration equipment.

9. There were no equipment malfunctions, or "downtimes," during the demonstrations.

10. Recruiters endorsed the idea of applicant independence based on interactive programming, permitting the applicant to progress through most of the AGENA system without recruiter intervention. Recruiters also endorsed the personalized dialogues and optional hard-copy output.

### CONCLUSIONS

Several lines of research contributed to the development of a microcomputer-based system with characteristics judged acceptable for use in a recruiting station environment. For both recruiter and applicant, the use of the system was simplified by a design that

was user-friendly, presuming no prior experience with computers. Simplicity and effectiveness were assured by the menu-driven interactive software.

R&D efforts on the demonstration version of NPAS to date lend support to the following conclusions:

1. A microcomputer equipment configuration is fully capable of supporting the NPAS functions that have been developed.
2. A microcomputer equipment configuration would not unduly hamper physical space allocations in the average recruiting station, nor would it increase noise levels appreciably.
3. Noise levels of the average recruiting station would not impact adversely upon recruiter or applicant use of the system.
4. All screen dialogues are at a readability level appropriate to recruiters. While no research has been conducted with applicants, the dialogues are presumably at a suitable reading difficulty level, having undergone modification to conform to readability standards.
5. The RMS subsystem will relieve a significant portion of the recruiter's clerical load and will make collecting information far easier. Error rates will be reduced, as will the need for retyping of forms. Increased accuracy and speed of production will characterize reporting procedures. Additionally, the system will lessen physical storage requirements and dramatically increase the speed of information retrieval.
6. CAST will provide better prediction of applicants' AFQT scores than EST and will markedly lessen chances of test compromise, while reducing cost, storage requirements, and clerical error.
7. Pre-CLASP will provide accurate knowledge of available ratings to the recruiter and prediction of CLASP assignment options available at the MEPS. Pre-CLASP also shows promise for DEP management.
8. NPAS will provide more accurate, consistent, and thorough Navy job information than is presently available to the applicant and will presumably result in a more knowledgeable candidate for enlistment.
9. The demonstration system was easy to use ("user-friendly").
10. Major efforts will be required to demonstrate the benefits of vocational guidance and assignment prediction to the NRC before the potential of NPAS can be realized to a significant degree.

#### **RECOMMENDATION**

When funds are available, a microcomputer-based demonstration system should be developed, and a field test conducted to assess its impact on recruiting operations, accessions, and attrition.



## REFERENCES

- Baker, H. G. Navy Personnel Accessioning System (NPAS): I. Background and overview of the person-job matching (PJM) and recruiting management support (RMS) subsystems (NPRDC SR 83-34). San Diego: Navy Personnel Research and Development Center, May 1983. (a)
- Baker, H. G. Navy Personnel Accessioning System (NPAS): II. Summary of research and development efforts and products (NPRDC SR 83-35). San Diego: Navy Personnel Research and Development Center, May 1983. (b)
- Rafacz, B. A., & Betts, G. Evaluation of the pre-CLASP procedure (working paper). San Diego: Navy Personnel Research and Development Center, September 1980.

**APPENDIX A**  
**SAMPLE VIDEO DISPLAY TERMINAL SCREEN DIALOGUES**  
**FROM APPLICANT MODULES**

Hello, John

Welcome to the ACENA System. This system is running on a microcomputer. Before you get started on the system, we will go over some instructions on its use. The computer terminal is directly in front of you. As you can see, this terminal has a display screen and two keyboards. The small keyboard on the right is for your use. You will not be using the large keyboard on the left that looks like a typewriter keyboard.

Press the red key marked 'GO' to continue

O.K. That's fine.

Some of the questions you will be asked can be answered either Yes or No.

Two keys on the small keyboard are marked 'Y' (for Yes) and 'N' (for No).  
If you want to answer Yes, you would press the 'Y' key and then press the GO key.

Do you understand ? (Y or N) N

In addition to the terminal you are using, the computer system has disk drives and a printer. These disk drives and the printer are for the use of the recruiter. You will progress through the entire AGENA system simply by using the small keyboard on the right side of the terminal.

Thank you for your cooperation.

\*\*\* Press GO to continue

## Module No. 1 - SYSTEM INTRODUCTION

The purpose of this module is to give you an idea of what the entire AGENA System is like.

If you have not already taken the Armed Services Vocational Aptitude Battery (ASVAB), you will be given a short aptitude test when you complete this module.

In the career planning module, we will discuss some of the things you need to know to choose the right career for you. The fourth module is an interest inventory which can help you learn more about the kinds of jobs you might like. The fifth module will explain the meaning of your ASVAB scores, if you have taken the test battery. Finally, jobs in the Navy (called 'ratings') have been organized into fifteen groups. You will have a chance to review descriptions of these rating groups in the last module.

\*\*\* Press GO to continue

The full name of this system is the Automated Guidance for Enlisted Navy Applicants (AGENA) System.

A - Automated  
G - Guidance for  
E - Enlisted  
N - Navy  
A - Applicants

The AGENA System is designed for use by non-prior service enlisted male applicants.

\*\*\* Press GO to continue p

Incorrect response - please resubmit

\*\*\* Press GO to continue

The AGENA System contains six separate modules:

- 1 - System Introduction
- 2 - Aptitude Test
- 3 - Career Planning
- 4 - Interest Inventory
- 5 - ASVAB Interpretation
- 6 - Rating Groups

Module 1, 3, 4, and 6 are used by all applicants.

Module 2 is used only by applicants who have not yet taken the Armed Services Vocational Aptitude Battery (ASVAB).

Module 5 is used only by applicants who have taken the ASVAB.

\*\*\* Press GO to continue @

Incorrect response - please resubmit

\*\*\* Press GO to continue



John

You have now completed Module No. 1

The next module you need to complete is :

Module No. 2 - APTITUDE TEST

Do you wish to continue at this time ? (Y or N) M

Incorrect response - please resubmit

Do you wish to continue at this time ? (Y or N) N

The following item is for practice only and will not be counted in scoring your test.

Children enjoy \_\_\_\_\_ in the sandbox at the park.

- (1) Understanding
- (2) Finding
- (3) Working
- (4) Playing

Your answer is ? 1

You seem to be having some trouble understanding the directions.

Please call the recruiter for assistance. Thank you.

\*\*\* PRACTICE ITEM \*\*\*

VOCATIONAL INTEREST CAREER EXAMINATION

-----  
1 = Like                      2 = Indifferent                      3 = Dislike  
-----

1. Television Repairman

Please enter your choice (1, 2, or 3), then press the 'GO' key.

**APPENDIX B**  
**SAMPLE VIDEO DISPLAY TERMINAL SCREEN DIALOGUES**  
**FROM RECRUITER MODULES**

Recruiter Message

This person is having some difficulty with the instructions and/or equipment. Please assist him in using the AGENA System.

Enter you Recruiter password and then press the RETURN key to continue.

Password = ?

The following is a Demonstration of the Recruiting Management Support Function.

If the answer to a question is unknown, simply press the RETURN key and continue. You may submit any data at a later date except for the applicant's SSAN, which must be submitted when requested.

Press RETURN to continue

Which of the following Recruiting  
Management Support functions do you wish  
to perform now?

- 1 - INPUT data on an applicant,  
to include:  
NEW  
CONTINUE  
REVISE  
REMARKS
- 2 - REVIEW the data of a previously  
processed applicant
- 3 - PRINT enlistment forms for DD 1966
- 4 - REMOVE a previously processed applicant
- 5 - TERMINATE this NPAS computer  
system session

FUNCTION ? 3

Which of the following do you wish preformed (Press RETURN to exit)

- 1 - ALL pages printed
- 2 - SELECTED pages printed

CHOICE ? 1



INSERT DD FORM 1966 PAGE NO. 1 INTO PRINTER AND ALIGN PAPER

Please set the Top of Form switch

Press RETURN to begin printing (any other key to Exit)

This procedure will erase all the  
the applicant's existing information  
file from the diskette in drive # 1.

Do you wish to continue with  
REMOVE operation (Y or N) ? y

48. STATEMENTS OF NAME FOR OFFICIAL  
MILITARY RECORDS:

NAME ON BIRTH CERT.

No difference in names

PREFERRED NAME

SSAN REFLECTED NAME

NAME AND GRADE OF WITNESS

Press RETURN to continue,  
'\*' for incorrect,  
'-' to redisplay

40. DATA VERIFICATION BY RECRUITER:

NAME OF DOCUMENT  
Birth Certificate

APPLICANT AGE ACCORDING TO DOCUMENT  
20

APPLICANT CITIZENSHIP ACCORDING TO DOCUMENT  
U.S.A.

Press RETURN to continue

37. REMARKS:

(Continuation of Page 2, Item 22 Education)

School number 4

NAME AND LOCATION

Hillside High School, Madisonville, Pennsylvania

FROM - 1972 TO - 1974

GRADUATE - NO

School number 5

NAME AND LOCATION

Fred H. Rohr High School, Jefferson, Pennsylvania

Press RETURN to continue

You have reviewed all information  
recorded on this applicant:

SSAN = 121212121

NAME = Sample, John Q

You identified 5 items

Would you like to see a listing of the  
incorrect items on the screen (Y or N)  
? y

Which of the following Recruiting  
Management Support functions do you wish  
to perform now?

1 - INPUT data on an applicant,  
to include:

NEW

CONTINUE

REVISE

REMARKS

2 - REVIEW the data of a previously  
processed applicant

3 - PRINT enlistment forms for DD Form 1966

4 - REMOVE a previously processed applicant

5 - TERMINATE this NPAS computer  
system session

FUNCTION ? 5

This session is over

e

**APPENDIX C**

**SAMPLE PRINTED OUTPUT  
FROM APPLICANT MODULES**



U.S. Navy Recruiting Station  
1231 South Hill St.  
Oceanside, Ca. 92054  
(714) 722-1231, 722-1232  
NCI John Smith

WILLIAMS JOHN ANDREW  
123456789

### VOCATIONAL INTEREST - CAREER EXAMINATION

<u>Interest Area</u>	<u>Score</u>	<u>Interest Level</u>		
		<u>Low</u>	<u>Average</u>	<u>High</u>
Office Administration	85%	*****	*****	*****
Electronics	52%	*****	*****	*****
Heavy Construction	69%	*****	*****	*****
Science	58%	*****	*****	*****
Outdoors	14%	*****	*****	*****
Medical Service	81%	*****	*****	*****
Aesthetics	90%	*****	*****	*****
Mechanics	44%	*****	*****	*****
Food Service	85%	*****	*****	*****
Law Enforcement	59%	*****	*****	*****
Audiographics	79%	*****	*****	*****
Mathematics	83%	*****	*****	*****
Agriculture	90%	*****	*****	*****
Teacher/counseling	72%	*****	*****	*****
Marksman	9%	*****	*****	*****
Craftsman	63%	*****	*****	*****
Drafting	62%	*****	*****	*****
Automated Data Processing	74%	*****	*****	*****

U.S. Navy Recruiting Station  
 1231 South Hill St.  
 Oceanside, Ca. 92054  
 (714) 722-1231, 722-1232  
 NC1 John Smith

WILLIAMS JOHN ANDREW  
 123456789

### ARMED SERVICES VOCATIONAL APTITUDE BATTERY

<u>ASVAB Subtest</u>	<u>Score</u>	<u>Aptitude Level</u>		
		<u>Low</u>	<u>Average</u>	<u>High</u>
General Information (GI)	74%	*****		
Numerical Operations (NO)	25%	*****		
Attention to Detail (AD)	46%	*****		
Word Knowledge (WK)	90%	*****		
Arithmetic Reasoning (AR)	19%	*****		
Space Perception (SP)	43%	*****		
Mathematics Knowledge (MK)	19%	*****		
Electronics Information (EI)	82%	*****		
Mechanical Comprehension (MC)	51%	*****		
General Science (GS)	96%	*****		
Shop Information (SI)	15%	*****		
Automotive Information (AI)	57%	*****		

U.S. Navy Recruiting Station  
1231 South Hill St.  
Oceanside, Ca. 92054  
(714) 722-1231, 722-1232  
NC1 John Smith

JONES DAVID R  
234879870

**AUTOMATED GUIDANCE FOR ENLISTED NAVY APPLICANTS  
(AGENA) SYSTEM STATUS REPORT  
DATE: 81/ 7/10**

<u>No.</u>	<u>Module Name</u>	<u>Status</u>
1	System introduction	Completed
2	Aptitude test	Not completed
3	Career planning	Not completed
4	Interest inventory	Not completed
5	ASVAB interpretation	Unnecessary
6	Rating groups	Not completed

**APPENDIX D**  
**SAMPLE PRINTED OUTPUT**  
**FROM RECRUITER MODULES**

**WILLIAMS JOHN ANDREW**  
**123456789**

**APPLICANT INPUT DATA**

**ASVAB Scores:**    **GS** **AR** **WK** **PC** **NO** **CS** **AS** **MK** **MC** **EI** **VE**  
                      **67** **55** **50** **60** **62** **64** **63** **60** **55** **59** **56**

**Physical Information:**            **Color Perceptions:**            **Normal**  
   **Hearing:**                            **Normal**  
   **Speech:**                            **Normal**  
   **Vision:**                            **Correctable to 20/20**

**Other Information:**            **High School Graduate:**            **Yes**  
   **High School Trigonometry:**       **Yes**  
   **U.S. Citizen:**                       **Yes**  
   **Defense Language Aptitude Battery:** **No**  
   **Eligible for Security Clearance:**    **Yes**  
   **Chronic Drug Abuser:**               **No**  
   **Nuclear Field:**                       **Yes**

**Race Code (C-Caucasian, N=Negroid, X=Other, U=Unknown):** **C**

**Occupational Group Preferences:** **OA OB**

**Ship Months Requested:** **AUG 81 SEP 81**

**Expected AFES Arrival Dates:** **81/8/1 81/8/8**

WILLIAMS JOHN ANDREW  
123456789

**PRE-CLASP SESSION ON 82/2/5**

**Input Data from Prospective Recruits:**

ASVB Scores:      WK AR MC SI MK EI GS NO AD AI SP  
                    65 55 50 60 62 64 63 60 55 59 56

Color Perception:    Normal  
Hearing:            Normal  
Speech:             Normal

High School Graduate:            Yes  
High School Trigonometry:        Yes  
U.S. Citizen:                      Yes  
Defense Language Aptitude Battery: No

Race Code (C=Caucasian, N=Negroid, X=Other, U=Unknown): C

Occupational Group Preferences: NF

Ship Months Requested:  
MAY82 JUN82

Expected AFEEES Arrival Dates: 82/2/6 82/2/13

**PRE-CLASP Options for shipping in May 82:**

Rating Code	Optimality Index	Probability (in percent) that rating will still be an option on:	
		82/2/6	82/2/13
STG	92	77	68
STS	81	67	59
ETNF	87	99	99
MMNF	69	99	99
ICNF	67	99	99
EMNF	61	99	99
HM	57	99	99

**PRE-CLASP options for shipping in JUN 82:**

Rating Code	Optimality Index	Probability (in percent) that rating will still be an option on:	
		82/2/6	82/2/13
STG	92	77	68
STS	81	67	59
ETNF	76	99	99
MMNF	69	99	99
ICNF	67	99	99
EMNF	61	99	99
HM	57	99	99

WILLIAMS JOHN ANDREW  
123456789

**INELIGIBLE RATING LIST**

Based upon the applicant's ASVAB scores, he is not eligible for the following ratings:

5YO DP ; 5YO DT ; 5YO EA ; SG IS ; SG OT ;

WILLIAMS JOHN ANDREW  
123456789

PRE-CLASP OPTIONS FOR SHIP MONTH: AUG 81

<u>Pgm</u>	<u>Option</u>	<u>Rating</u>	<u>Optimality Index</u>	Chances in 100 that Rating will be open on	
				<u>81/8/1</u>	<u>81/8/8</u>
NF		ET	92	77	68
NF		IC	81	67	59
NF		EM	76	99	99
AEF		AT	69	99	99
AEF		DS	67	99	99
ATF		HM	61	99	99
SG		AT	57	99	99



WILLIAMS JOHN ANDREW  
123456789

PRE-CLASP OPTIONS FOR SHIP MONTH: SEP 81

<u>Pgm</u>	<u>Option</u>	<u>Rating</u>	<u>Optimality Index</u>	<u>Chances in 100 that Rating will be open on</u>	
				<u>81/8/1</u>	<u>81/8/8</u>
NF		ET	92	68	61
NF		IC	81	59	54
NF		EM	76	99	99
AEF		AT	69	99	99
AEF		EW	67	99	99
AEF		FT	61	99	99
SG		AT	57	99	99

## APPLICATION FOR ENLISTMENT - ARMED FORCES OF THE UNITED STATES

Form Approved  
OMB 37-8 0331

## DATA REQUIRED BY THE PRIVACY ACT OF 1974

AUTHORITY: Title 10, United States Code, Sections 504, 505, 508, and 510, and Executive Order 9397.

PRINCIPAL PURPOSE: To determine your eligibility for enlistment.

ROUTINE USE: If you are enlisted, this form becomes the principal source document for, and a part of, your military personnel records which are used to make decisions related to your training, promotion, reassignment, and other personnel management actions.

DISCLOSURE: Voluntary; failure to answer all questions on this form except 12, 28, 32, and 35 may result in denial of your enlistment.

## WARNING

Information provided by you on this form is FOR OFFICIAL USE ONLY and will be maintained and used in strict compliance with Federal law and regulation. The information provided by you becomes the property of the United States Government and it may be consulted throughout your military service career, particularly whenever either favorable or adverse administrative or disciplinary actions related to you are involved.

YOU CAN BE PUNISHED BY FINE, IMPRISONMENT OR BOTH  
IF YOU ARE FOUND GUILTY OF MAKING A KNOWING AND WILLFUL FALSE STATEMENT ON THIS APPLICATION.

## INSTRUCTIONS (Read carefully BEFORE filling out this form).

1. Type or print LEGIBLY all answers; if the answer is "None" or "Not Applicable," so state.
2. Questions 12, 28, and 32 are optional and may be left blank. Question 35 may be answered orally.
3. If additional space is needed for any answer, continue it in Item 37, "REMARKS."

## SECTION I - PERSONAL DATA

SERVICE **D A R**☒ RPS ☐ P

1. SOCIAL SECURITY ACCOUNT NUMBER										2. NAME (Last - First - Middle - Initial - Suffix - Jr. - Sr. - etc.)									
2 3 2 - 3 2 - 3 2 3 2										Turner, Rodney Lee									
3. CURRENT ADDRESS (Street, City, County, State & ZIP Code)										4. HOME OF RECORD (City, County, State, & ZIP Code)									
5091 Alumni Place La Jolla (San Diego), CA										La Jolla (San Diego), CA									
9 2 0 0 0										9 2 0 0 0									
5. CITIZENSHIP										6. SEX									
<input checked="" type="checkbox"/> U.S. BORN <input type="checkbox"/> U.S. NATURALIZED <input type="checkbox"/> U.S. NATIONAL <input type="checkbox"/> NON-U.S. (Specify)										<input checked="" type="checkbox"/> MALE <input type="checkbox"/> FEMALE									
7. POPULATION GROUP										8. DATE OF BIRTH									
<input type="checkbox"/> AM INDIAN <input type="checkbox"/> ASIAN <input type="checkbox"/> OTHER (Specify)										Y Y M M D D									
None										6 3 1 1 0 2									
9. MARITAL STATUS										10. RELIGIOUS PREFERENCE									
SINGLE										Roman Catholic									
NONE (0)										12D									
14. SELECTIVE SERVICE INFORMATION										15. FOREIGN LANGUAGE AND SKILL									
NUMBER CLASS										French									
<input checked="" type="checkbox"/> NOT REGISTERED										<input checked="" type="checkbox"/> SPEAK <input checked="" type="checkbox"/> WRITE <input type="checkbox"/> READ									
16. DRIVER'S LICENSE INFORMATION										17. DRIVER'S LICENSE INFORMATION									
STATE NUMBER EXPIRES										CA N5333590 1983									

DO NOT WRITE IN THIS SECTION  
(Go on to Row 32)SECTION II - EXAMINATION AND ENLISTMENT DATA PROCESSING CODES  
- FOR OFFICE USE ONLY -

17. MENTAL TEST RESULTS																			
A. TEST ID										B. TEST SITE									
C. TEST DATE										D. TEST GRADE									
E. TEST GRADE										F. TEST GRADE									
G. TEST GRADE										H. TEST GRADE									
I. TEST GRADE										J. TEST GRADE									
K. TEST GRADE										L. TEST GRADE									
M. TEST GRADE										N. TEST GRADE									
O. TEST GRADE										P. TEST GRADE									
Q. TEST GRADE										R. TEST GRADE									
S. TEST GRADE										T. TEST GRADE									
U. TEST GRADE										V. TEST GRADE									
W. TEST GRADE										X. TEST GRADE									
Y. TEST GRADE										Z. TEST GRADE									
AA. TEST GRADE										AB. TEST GRADE									
AC. TEST GRADE										AD. TEST GRADE									
AE. TEST GRADE										AF. TEST GRADE									
AG. TEST GRADE										AH. TEST GRADE									
AI. TEST GRADE										AJ. TEST GRADE									
AK. TEST GRADE										AL. TEST GRADE									
AM. TEST GRADE										AN. TEST GRADE									
AO. TEST GRADE										AP. TEST GRADE									
AQ. TEST GRADE										AR. TEST GRADE									
AS. TEST GRADE										AT. TEST GRADE									
AU. TEST GRADE										AV. TEST GRADE									
AW. TEST GRADE										AX. TEST GRADE									
AY. TEST GRADE										AZ. TEST GRADE									
BA. TEST GRADE										BB. TEST GRADE									
BC. TEST GRADE										BD. TEST GRADE									
BE. TEST GRADE										BF. TEST GRADE									
BG. TEST GRADE										BH. TEST GRADE									
BI. TEST GRADE										BJ. TEST GRADE									
BK. TEST GRADE										BL. TEST GRADE									
BM. TEST GRADE										BN. TEST GRADE									
BO. TEST GRADE										BP. TEST GRADE									
BQ. TEST GRADE										BR. TEST GRADE									
BS. TEST GRADE										BT. TEST GRADE									
BU. TEST GRADE										BV. TEST GRADE									
BW. TEST GRADE										BX. TEST GRADE									
BY. TEST GRADE										BZ. TEST GRADE									
CA. TEST GRADE										CB. TEST GRADE									
CC. TEST GRADE										CD. TEST GRADE									
CE. TEST GRADE										CF. TEST GRADE									
CG. TEST GRADE										CH. TEST GRADE									
CI. TEST GRADE										CJ. TEST GRADE									
CK. TEST GRADE										CL. TEST GRADE									
CM. TEST GRADE										CN. TEST GRADE									
CO. TEST GRADE										CP. TEST GRADE									
CQ. TEST GRADE										CR. TEST GRADE									
CS. TEST GRADE										CT. TEST GRADE									
CU. TEST GRADE										CV. TEST GRADE									
CV. TEST GRADE										CW. TEST GRADE									
CX. TEST GRADE										CX. TEST GRADE									
CY. TEST GRADE										CY. TEST GRADE									
CZ. TEST GRADE										CZ. TEST GRADE									
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### ZONE SUPERVISOR'S GOAL/ACCESSION REPORT

Navy Recruiting District: San Diego  
Zone Number: 2  
Zone Supervisor: NCM Mark Scott

Period: 8/81  
Report Date: 8/15/81  
% of Period: 50

<u>Type of Applicant</u>	<u>Status</u>			
	<u>Goal</u>	<u>Accessions</u>	<u>Difference</u>	<u>% Goal</u>
ONE NAVY	55	31	24	56
NPS MALE	43	20	23	47
HSDG/LMG	18	8	10	44
NHSDG/UMG	11	7	4	64
HISPANIC	6	4	2	33
MG IV DEP OUT	6	3	3	50

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